

ON
EYE AFFECTIONS

FROM
MALARIAL POISONING,

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FROM

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The diseases of the eye arising from malarial infection may be divided into two groups; first, those which accompany the paroxysms of malarial fever, and secondly, those which make their appearance shortly after the attack and are apparently caused by this disease. Of the former I can not speak from personal experience, and have, therefore, in the following description of the same, availed myself of the writings of *Leber* (Græfe-Sæmisch's Handbuch der Augenheilkunde. Band V. p. 960), *Pcunoff* (Beobachtungen ueber Erkrankungen des Sehorgans bei Intermittens. Bulletins der kaiserlichen Kaukasischen Gesellschaft in Tiflis. Published in abstract in Hirschberg's Centralblatt fuer Augenheilkunde, March, 1879), *Koslowsky* (Hirschberg's Centralblatt, February, 1879), and others.

Whilst in the great majority of cases of malarial fevers the organ of vision shows no signs of disturbance during the paroxysm, cases are occasionally seen in which there is hyperæmia of the conjunctiva, circumcorneal injection, lachrymation, photophobia and blepharospasm without impairment of vision; sometimes there is also irritation of the iris and more rarely marked iritis. The first-mentioned symptoms always disappear with the paroxysm,

whilst the angio-neurotic symptoms of the iritis are at least much mitigated during the apyrexial period.

Temporary amaurosis, commonly of both eyes, has been repeatedly observed as a complication of the paroxysms of intermittent fever. The fever was, as a rule, of the tertian type. The paroxysms during which the amaurosis occurred, were either of not more than ordinary severity, or they were accompanied by such grave symptoms as aphasia, paralysis of the extremities, delirium and coma. Occasionally the patient, on awakening from a prolonged attack of coma, would find himself totally blind. The amaurosis was in some cases accompanied by pain in the eye or head, photophobia and slight redness of the eye, but in others it was not. In the majority of the cases reported both eyes were affected. Whilst in most cases the blindness began with the chill, continued during the hot stage and disappeared again during the sweating stage, there are a few cases on record in which the blindness continued for many hours after the paroxysm. In some of the cases the blindness was total, but in others there remained some perception of light. The pupils were commonly dilated during the attack, and reacted to light either sluggishly or not at all. The degree of blindness and the condition of the pupils would often vary in the different attacks of the same patient. Blindness of the right half of the visual field of both eyes was observed by *Dr. Reich* on himself during a paroxysm of fever. The hemianopsia had fortunately passed away on the following morning. In all of the cases reported, the recurrence of the attacks of amaurosis was prevented by the administration of quinine.

Intermittent amaurosis has also been observed in cases of latent periodic fevers, in which slight nausea, or some chilliness, or perhaps moderate perspiration were the only

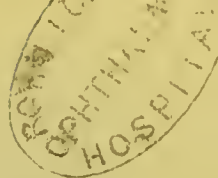
symptoms present. The attacks of blindness which, according to *Himly*, are more frequently confined to one eye in this form of fever, assume the quotidian, double quotidian and tertian type, although the latter is the most common. The duration of the attack varies from a quarter of an hour to ten hours or more. If the blindness recurs every night, this affection may bear some resemblance to hemeralopia, and this explains, perhaps, the statement of some authors that night blindness is sometimes caused by intermittent fever. In an interesting case of this kind, reported by *Staber* (*Leber*, op. cit.), the patient was at first supposed to suffer from night blindness, until some days later, the time of the recurrence of the amaurosis was delayed and attacks of complete blindness in both eyes came on in broad daylight. Quinine speedily cured the attack. This form of intermittent amaurosis is also frequently accompanied by headache, supraorbital neuralgia, photophobia, blepharospasm, lachrymation and vaso-motor neuroses of the eye. In some of the cases tenderness of the spine was present. The recurrence of the attacks was in all cases prevented by sulphate of quinine.

In most of the cases examined ophthalmoscopically, no marked changes were observed; in a few, œdema of the optic papilla and hyperæmia of the retinal vessels were noticed, of which, however, no trace remained some hours after the attack. With regard to the condition of the pupil, the statements of authors are conflicting. Some report that notwithstanding there was absolute blindness, the pupil responded either pretty promptly or slowly, whilst others have observed the pupil to be inactive, although there remained distinct perception of light. An entirely normal activity of the pupil appears, however, not to have been present in any case. Of the

morbid anatomy of intermittent amaurosis nothing is known.

Proceeding now to the description of the second group of eye affections, *i. e.* those which follow and are apparently caused by malarial fevers, I premise that affections of nearly all the different structures of the eye have been observed to follow this disease. Judging from my own experience the disease most frequently observed in this connection is a superficial ulceration of the cornea, of which I see every year a great many cases. This corneal affection was first described by me in a paper read before the American Ophthalmological Society in 1880, and published in the Transactions of that Society. This ulceration of the cornea is commonly first noticed shortly after an attack of intermittent fever, often simultaneously with the appearance of herpetic vesicles on the nose and lips. In a number of my patients who had annual visitations of this fever, each attack was regularly followed by the ulceration of the cornea. In all of the cases that have come under my notice only one eye was affected.

If the eye is examined shortly after the first symptoms of irritation are noticed by the patient, one or two or more slightly raised, irregular, opaque lines of varying length will be found on different parts of the surface of the cornea. At the same time some circumcorneal injection will be present. On the following day these opaque lines will have increase in length, whilst at the same time the middle portion of the opacity has been transformed into a shallow ulcer. Under favorable circumstances no further increase in size takes place, the remaining opaque epithelium is thrown off, and reparation begins to be completed only after several weeks. But not unfrequently the ulcer continues for days, and even weeks to grow slowly in length, and at the same



time sends out club-shaped, slightly raised, grayish offshoots from its sides. In some of my cases the ulcer crept across the entire cornea, and in a few others in which several ulcers appeared simultaneously on different parts of the cornea, nearly the whole epithelial layer was eventually destroyed. As a rule the ulcer shows no marked tendency to increase in depth, and its floor and edges are usually of bluish-grey tint, although in the very painful cases one or more small densely opaque points can be found at some part of the ulcer. The middle and inner layers of the cornea generally remain transparent throughout, but in neglected or maltreated cases an extensive star-shaped opacity of a slightly yellowish-gray tint is sometimes developed in the inner layers of the central part of the cornea. A hypopion is but rarely seen even in the severest cases, and spontaneous perforation of the cornea did not occur in any of my cases. More or less hyperæmia of the iris is not unfrequently present. Circumcorneal injection was only rarely absent, but in no case was there much swelling of the conjunctiva. A decrease of the tension of the eye-ball, or a diminution of the sensibility of the cornea could not be demonstrated in any of the cases. The development and growth of the ulcer was always accompanied by very severe pain in and around the eye, more especially along the course of the supraorbital nerve, and by photophobia and lachrymation. The process of repair was commonly initiated by the extension of blood vessels from the limbus conjunctivæ towards the ulcer, and was in all cases extremely slow, two to four months being generally required for its completion.

Of the various local remedies which I have used in this affection, none have afforded greater relief than the pressure bandage, warm fomentations and the sulphate of

atropia. After the ulcer is well covered with blood vessels, the cure is often expedited by the use of a salve, composed of one part of the yellow oxide of mercury to fifty of vaseline, a small quantity of which is put once daily into the conjunctival sac. In addition to the local treatment I have always prescribed quinia and iron in large doses, and during the last two years I have given arsenic, generally in the form of Fowler's solution, in medium doses, in many cases with very beneficial results. In cases in which the pain was great I have never hesitated to give morphia in sufficient quantity to give relief.

The only reference to keratitis from intermittents, which I have been able to find in the literature at hand, is by *O. Becker* (Græfe und Sæmisch's Handbuch der Augenheilkunde, Vol.V., p. 350), as follows: "It is also said that at times, after the eye had been bandaged for a few days, the epithelial layer of the cornea became suddenly cracked, and was thrown off in large patches, but was completely regenerated in a few days. This description corresponds closely to the rare and very painful keratitis, following intermittens, which has been described by the older writers but is totally ignored in modern literature." My efforts to find a description of this form of keratitis in the older works on eye diseases have been fruitless.

Diseases of the uveal tract due to malarial fever must be of rare occurrence, as I do not remember to have seen a single case. *Pcunoff* (op. cit.), who made his observations in Southern Russia, has reported several cases of serous iritis, two of opacities in the vitreous body, associated with disease of the choroid and iris, and one of purulent choroiditis, which ended in atrophy of the eye-ball. In the latter case the patient was taken ill September 12, 1877. On October 18, during a paroxysm of fever, the eye became

so painful as to make the patient almost distracted. On examination the eye presented the picture of acute suppurative choroiditis. The globe was incised according to v. Græfe's method on October 20th. By this procedure much pus was evacuated and the pain instantly relieved. Subsequently the globe shrunk. With the exception of the last case, all recovered speedily under the use of quinine.

Extensive hemorrhage in the vitreous body was observed by *Kries* (v. Græfe's Archiv fuer Ophthalmologie, Band xxiv. I. p. 159). The patient had suffered from tertian intermittent fever from March 23 to March 31, for which he had taken quinine. The paroxysm expected on April 2d did not develop, but on the same day he became blind in his left eye. The vitreous was so full of blood that the fundus oculi could not be examined. Six months later when the patient was last seen, the eye was still blind.

Affection of the optic nerve and retina have been not unfrequently seen in cases of intermittent fever of long standing. Hemorrhage in the retina of one or both eyes, with or without impairment of vision, according to the part of the retina affected, have been reported by *MacKenzie* (London Lancet, October 6, 1877), *Kries* (op. cit.), and *Karpinsky* (Arztliche Blatter, No. 373, 1879, abstract published in Hirschberg's Centralblatt, March, 1880, p. 84). I myself have seen a number of cases of retinal hemorrhages in patients who had suffered for a long time from malarial fever, but in nearly all of these cases the examination of the urine revealed the presence of albumen or sugar. Whether in these cases the albuminuria and diabetes had been present before the intermittent fever attacked the patient or whether the former were caused by the latter I am unable to decide. All of these

patients had enlarged spleens, and were of decidedly cachectic appearance. In the cases in which no albumenuria or diabetes was present, the retinal hemorrhages presented nothing characteristic; they were generally of small size and situated at the periphery of the retina. The impairment of sight was not very marked in any one of the cases, and recovery took place under quinine and ergot in all of the cases which I could keep under observation for several months.

A form of retinitis resembling in appearance retinitis albuminuria is reported by Koslowsky (op. cit.).

Optic neuritis after intermittent fever has been observed a number of times by *Macnamara* in India (A Manual of the Diseases of the Eye, London, third edition, p. 442), and by *Jacobi* (v. Græfe's Archiv fuer Ophthalmologie, Band xiv. I, p. 154). A remarkable case of this affection is recorded by *Macnamara* (Medical Times and Gazette, May 2, 1868; quoted by Albutt, On the use of the Ophthalmoscope, p. 53). The patient, a girl aged thirteen, who had suffered from quotidian ague for a long time, was palsied in all four limbs and had marked œdema of the optic papilla of both eyes. There was no disease elsewhere except an enlarged spleen. Under the use of iodide of potassium with strychnine and arsenic the girl made a perfect recovery in a short time, her sight and motion being quite restored. In *Jacobi's* case sight was completely restored under the use of quinine and iron, and no relapse has occurred since.

Atrophy of optic nerves was observed to follow intermittent fever of long duration in two cases by *Peunoff* (op. cit.)

Partial or total loss of vision of one or both eyes without visible changes in the eye and therefore probably dependent on disturbances in the nervous centres, as a

sequela of latent or manifest intermittent fever, has been observed a number of times. Referring to the amblyopia following the latent form, *Leber* remarks that typical periodic exacerbations of the dullness of sight, accompanied by symptoms of irritation of the fifth pair of cranial nerves are of frequent occurrence in this disease, and that in the cases of amaurosis the typical character of the disease manifests itself by mild parosysms of fever, periodic headaches and neuralgias, with transient irritation of the eye. This affection reminds him of the reflex amaurosis from irritation of the trifacial nerve, in both of which affections the eye is very sensitive to light, and the sight is better in a moderate than in a strong light.

It is evident that the diagnosis of this affection may be very difficult, and that it can often be made positively only after recovery. Quinine fails at times to give relief in this affection, whilst arsenic produces a cure.

The amblyopia which is developed in patients who have suffered for a long time from pronounced intermittent fever, is undoubtedly often due to albuminuric neuroretinitis, as I know from personal observation, but certainly not in all. I have notes of two cases, both men, whose sight became very much impaired in both eyes shortly after a prolonged and severe attack of intermittent fever. The ophthalmoscopic examination failed to discover any visible changes in the eyes, and the examination of the urine showed it to be normal. Both men were very anæmic and had enlarged spleens. Neither presented any evidence of cerebral or spinal disease. In both the sight, it is alleged, was good before the attack of fever. Both men had been hard drinkers and had used tobacco, probably to excess, before they were taken sick. There is no contraction of the visual field in either case, and the impairment of the color sense is proportionate

to the amblyopia. Quinine, arsenic, strychnine and iron have been used for months, but have failed to produce any improvement of sight.

There can be no doubt, I think, that the amblyopia is in these cases dependent on some disturbance of the nervous centres caused by the intermittent fever. As to the nature of the disturbance I shall not venture to express an opinion. Similar cases have probably been observed by others, although I have not been able to find a record of them.

Spasm of the accommodation has been observed by *Stilling* (Klinische Monatsblaetter fuer Augenheilkunde, Band xiii, 1875, p. 6), in three cases of latent intermittent fever. The perusal of these histories arouses, however, a doubt as to whether a real spasm of the accommodation was present in these cases. The supraorbital and ciliary neuralgia which was present yielded to quinine.

with the kind regards
of W. F. Norris.

“INTRAOCULAR TUMORS.”

BY

W. F. NORRIS, M.D.



